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plumage. The proper specific name of this species is *surinamensis* (Gmelin), given in 1788, so *melanops* is a synonym. The generic (or subgeneric) name of *Chlidonias*, applied to this species by Rafinesque, based, as it is, mainly on the absence of a hind toe, is of peculiar interest, as it appears to have a priority of above 2 months over the previously accepted name of *Hydrochelidon* given this genus by Boie. Boie's name was published in the fifth number of Oken's magazine, Isis, for the year 1822. This would make May of that year the date of publication, whereas Rafinesque's name appeared February 21st. Having determined that Rafinesque's species was the Black Tern we can hardly avoid recognizing the tenability of the generic name of which it is the undoubted type, although the character of the hind toe which he mentions was either a deformity or resulted from the work of the taxidermist in preparing the specimen. In other words, no known species of the subfamily *Sterninæ* normally lacks the hind toes.

As Rafinesque did not base his separation of this genus from *Sterna* wholly on the absence of hind toes but upon one or two other characters, including those of the bill, it would seem necessary to supersede *Hydrochelidon* Boie by *Chlidonias* Rafinesque and to name the Black Tern, *Chlidonias nigra surinamensis* (Gmelin), unless it be considered that his name is identical with *Chlidonia* Hübner, 1816.

NOTES ON THE SPRING MIGRATION AT TIMBER LINE, NORTH OF GREAT SLAVE LAKE.

BY DAVID E. WHEELER, M. D.

THE spring of 1910 I spent with the Dog-rib Indians. During April we hunted the wooded country between Fort Rae on Great Slave Lake and Fort Enterprise.

Only the foundations of Fort Enterprise are left but the place is accurately located on the Canadian maps from Sir John Franklin's survey. I think no white man has visited it since 1821, the date of Franklin's departure. The clearing about the fort is still well

defined although the appearance of the stumps indicates that no trees have been cut since that great explorer lived there. In other words nature has made no appreciable effort at reforestation in ninety years. The trees in the surrounding grove are at least five hundred years old. We found 1910 to be a very poor caribou year, yet during April our lodge took and used twenty-four, all females or yearlings.

May first I crossed the Coppermine River with one lodge of Indians. About twenty miles out on the Barrens we saw a band of ten caribou, all females or young. We killed only one of these. They were the last females we saw. I got a very strong impression that the caribou wintering between Rae and Enterprise in 1910 belonged to a herd of females, that this herd was almost completely exterminated during the winter and that in consequence there was practically no spring female migration at Fort Enterprise in 1910.¹

At Diri Ti we left the squaws in a grove of large spruce and fir trees — the only grove known northeast of the Coppermine River. Two of the bucks and myself hunted the country west of Conghia Ti, but without success. We then returned to Fort Enterprise to await the migration of the stag caribou. Two of our dogs starved to death and we ourselves were slightly weakened from lack of food.

May 14 one of the Indians killed a Richardson's Barren Ground Bear. It was very fat, and its stomach contained two fish and a ground squirrel but its main food had been berries which had stained the whole intestine purple. A similar stain dyed the intestines of Ptarmigan taken at this season.

May 18 the migration of the stag caribou commenced. It lasted about ten days. The numbers in this herd were too large to estimate. Bands ranging from ten to two hundred were constantly passing. We killed thirty. Then the chief told us to kill no more as we had enough. I saw no females in this herd, and I believe that they had wintered in some place unknown to the Indians.

May 30, we returned to the Barrens. In the woods the snow had melted and the ground was bare but beyond timber line there was enough snow for travel with dog sleds. We went east of north and in six days reached a point near to the spot where the

¹ The fur traders at Rae have written to me to say that in 1911 the caribou returned in their usual numbers.

Arctic circle cuts Bathurst Inlet. Every night it froze, and every day there was a heavy thaw; yet at our turning point there was more snow than there had been at our starting point. The first day out we caught up with the migrating stags and saw at a very rough estimate about one thousand of them. These were the laggards, the fat old gentlemen, big and heavy with horns in the velvet and about two feet long. After this we saw fewer each day and the individuals seen averaged younger, thinner and more active.

At our turning point we had reached the vanguard and saw only about two hundred, all of them young — “runners” as the men of Newfoundland call them. These Barren Ground Caribou impressed me as being much more nearly related to the Newfoundland Caribou than to the Woodland Caribou.

On the way back we soon came to bare ground and left our sleds packing out our blankets on our backs. We reached Enterprise June 11. By this time all the caribou were beyond the Coppermine River.

We stayed at Enterprise about a week and then set out for Rae. The first lake crossed was choked with ice but there was open water in all the rest of them.

Seven species of trees were noted. The Spruce (Dog-rib name-*Tsi*). Is found as a large tree to the edge of the Barren Lands, and in isolated groves many miles beyond the line of continuous timber. Stunted, dwarf trees (Dog-rib name *Tchu nêch'oli*, usually translated “the land of little sticks”) occur south of timber line and also on the Barrens as an irregular fringe rarely more than a few miles from the large trees. The banks of the Coppermine River below Lac de Gras and the shore of the Southern extremity of Diri Ti are well wooded. No wood is found between Winter Lake and the Coppermine or between the Coppermine and Diri Ti. There is a fir tree (Dog-rib name — *Tsi*), which only grows North of Aiejean Ti,¹ found wherever the Spruce reaches large size, even in the groves far out on the Barrens. It does not occur south of Aiejean Ti. The trees are more spreading and even than the Spruce, and their bark is thin, pale, smooth and contains blisters

¹ Aiejean Ti = Spirit Lake.

of balsam. The indians recognize them as different from the Spruce, although they have no separate name for them.

The Gray or Jack Pine *Pinus divaricata* — (Con of the Dog-ribs), Tamarack (*Larix americana* — Dog-rib name *Inne doui*), and Poplar I did not find north of Aiejean Ti, Willows occurred as dwarf trees sparsely all over the barrens, extending far beyond the Spruce. Canoe Birch, *Betula papyrifera* — (Dog-rib name *Ki*) was found north of Aiejean Ti only as a dwarf tree.

The following notes on the birds were made during the hunting trip above described. I kept no record of the Raven nor of the Canada Jay. I have also omitted most of my observations on the birds of Great Slave Lake because that country is so well known that the rough data I was able to obtain seemed to me valueless. On the other hand Aiejean Ti, Diri Ti and Conghia Ti have never been visited by any white man but myself. Jjamba Ti was visited by Prof. Russell in 1894 early in the spring before the arrival of migrants. Therefore it seemed to me that that part of the country was so little known that any information about its birds might be worth preservation.

1. **Gavia immer.** LOON. — First seen June 5 about fifty miles north of Lac de Gras. The first one seen was shot.

2. **Larus argentatus.** HERRING GULL. — Dog-rib name *Maqueau*.¹ Reached Fort Enterprise May 21. Abundant.

3. **Sterna sp.?** TERN. — Dog-rib name — *Awzi maqueau*, literally Barren Ground Gull. First seen on the Barren Grounds northwest of Conghia Ti on June 1. Eggs were found on an island in Snare Lake June 26, some of them fresh, some of them containing chicks, but all fit to eat.

4. **Oidemia perspicillata.** SURF SCOTER. — Reached Fort Enterprise May 15. In the oviduct of a female killed May 24 was a full sized ovum.

5. **Dafila acuta.** PINTAIL DUCK. — Two killed near Fort Enterprise May 26.

6. **Chen hyperboreus hyperboreus.** SNOW GOOSE. — Wavey. Seen near Fort Enterprise May 26.

7. **Anser albifrons gambeli.** AMERICAN WHITE-FRONTED GOOSE. — First seen May 23 near Fort Enterprise. First killed May 27 near Fort Enterprise. This was the common goose about Fort Enterprise both in the timber and further north on the barrens.

8. **Lobipes sp.?** PHALAROPE. — Seen in the Coppermine River not far below Lac de Gras June 9.

¹ Dog-rib words should be pronounced as if they were French.

9. **Lagopus lagopus lagopus.** WILLOW PTARMIGAN.— Dog-rib name — *Kamba*. Winters throughout the timbered country between Edmonton and Fort Enterprise. May 5. Abundant flocks reach Diri Ti in the Barren Grounds. May 7. Concealed feathers on cocks' necks brown. May 10. Cocks white with brown necks. Hens in full winter plumage. Mating commences. May 22. Females begin to change winter for summer plumage. May 30. Both males and females mottled brown and white. Almost in full summer plumage.

10. **Lagopus rupestris rupestris.** ROCK PTARMIGAN.— Dog-rib name — *Kamba*. Winters throughout the timbered country between Edmonton and Fort Enterprise. May 3. First seen on the Barren Grounds — near Diri Ti. May 5. Abundant flocks reach Diri Ti. May 7. Concealed feathers on cocks' necks black. May 10. Cocks white with velvet black necks. Hens in full winter plumage. Mating commences. May 22. Hens begin to change winter for summer plumage. Ova in oviducts three-quarters of an inch long. May 30. Both males and females mottled black and white. Almost in full summer plumage. The first color change in the cocks of both Rock and Willow Ptarmigan appears to be an example of sexual and not of protective coloration. Color changes occur in the cocks more than a week before they occur in the hens. Color changes in the cocks occur simultaneously with mating; they occur in the hens simultaneously with the disappearance of the snow. The cocks which have partly changed color are much more conspicuous than the hens which have not.

11. **Lagopus leucurus leucurus.** WHITE-TAILED PTARMIGAN.— Dog-rib name — *Kamba*. June 4. A male bird seen but not shot in the high almost mountainous Barren Grounds west of Conghia Ti. He was in full winter plumage.

12. **Colaptes auratus luteus.** FLICKER.— Seen near Fort Enterprise May 28. Common from the date when first seen.

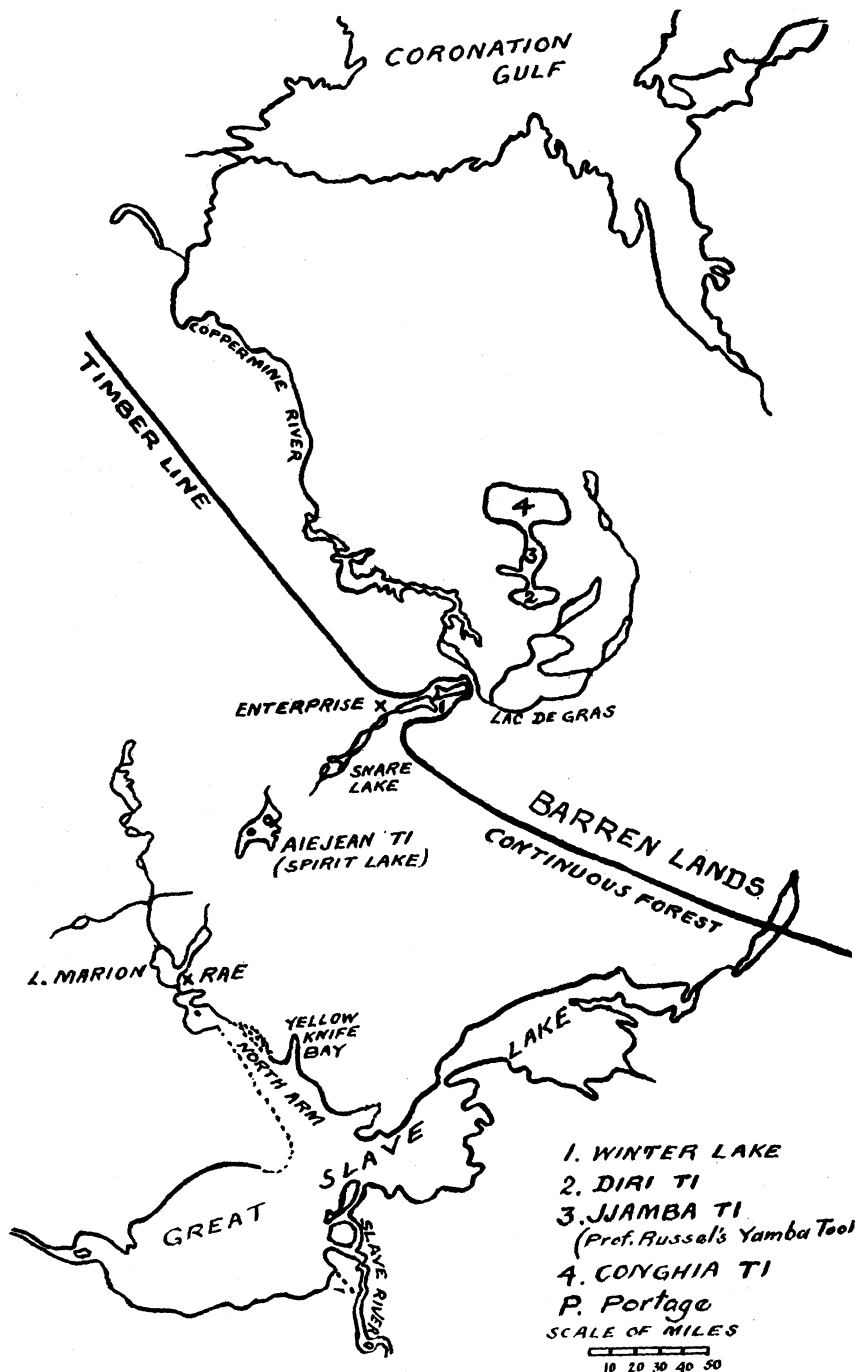
13. **Otocoris alpestris hoyti.** SHORE-LARK.— May 26. Reached Fort Enterprise. June 4. Seen on the Barren Grounds Northwest of Conghia Ti.

14. **Euphagus carolinus.** RUSTY BLACKBIRD.— Dog-rib name *Kearuttesi*. May 13. Reached Fort Enterprise. Not seen on the Barrens. Song: a very sweet, metallic, silvery whistle.

15. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.— April 14. Reached the country just north of Aiejean Ti. The Indians said that these birds do not winter in this country.

16. **Acanthis linaria linaria.** REDPOLL.— May 8. Reached Diri Ti in the Barrens.

17. **Plectrophenax nivalis nivalis.** SNOWFLAKE.— Dog-rib name — *Awzi tsching*. Barren Ground thing. Winter abundantly at Edmonton where they feed, like English Sparrows, on horse droppings. Jan. 30. Tracks seen about dog droppings on the long portage between Slave River and Slave Lake. These birds are rarely seen in the timbered country



MAP OF GREAT SLAVE LAKE AND REGION TO THE NORTH.

between Edmonton and Fort Enterprise, except as migrants. They probably winter in the treeless prairies from Edmonton southward. March 14. A flock seen near Smallpaper's house, North Arm of Slave Lake. March 18. First seen at Fort Rae. May 3. Tracks seen on the Barren Grounds. May 8. Birds seen on the Barren Grounds. May 19. Mating? Flocks abundant.

18. **Calcarius lapponicus lapponicus.** LAPLAND LONGSPUR. — On May 19 and afterwards seen frequently with the flocks of Snowflakes.

19. **Zonotrichia leucophrys leucophrys.** WHITE-CROWNED SPARROW. — May 26. Reached Fort Enterprise May 31. Common on the Barren Grounds one and a half days travel beyond the Coppermine River. Song: like the first two notes of a White-throated Sparrow's. If a White-throat's song is written *sow-wheat, peabody, peabody, peabody*, this bird's song would be written *sow-wheat, sow-wheat*. The Indians recognized this song as belonging to a small bird with a striped head.

20. **Spizella monticola monticola.** TREE SPARROW. — May 23, reached Fort Enterprise.

21. **Petrochelidon lunifrons.** CLIFF SWALLOW. — June 1, seen on the barrens beyond the Coppermine River.

22. **Bombycilla garrula.** BOHEMIAN WAXWING. — Dog-rib name *Krobine*. May 6. Reached Diri Ti. Seen in a grove of spruce and fir two days travel North of the Coppermine River. Between the Coppermine and Diri Ti there is absolutely no timber, when we crossed the Coppermine we carried with us even our kettle sticks.

23. **Planesticus migratorius migratorius.** ROBIN. — Dog-rib name *Goshi*. May 17. Reached Fort Enterprise. Abundant throughout the timbered country. Scarce north of the continuous woods.

The accompanying map is partly from the published maps of the Interior Department of the Dominion of Canada. Great Slave Lake north of Yellow Knife Bay and Lake Marion are so inaccurately drawn there, that I give them from my own courses and estimated distances. Aiejean Ti which is not shown on any published map, I have mapped from my own observations. Diri Ti, Jjamba Ti and Conghia Ti I have copied from a sketch map made by Germain, an old Indian who has hunted this region all his life. Winter Lake is double as I have drawn it. Canadian maps show only the western end of the lower lake.